

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

RANDALL C. TORNO and
JANET TORNO,

Plaintiffs,

v.

Case No. 03-74091
Hon. Victoria A. Roberts

2SI, LLC., AMW CUYUNA ENGINE CO., INC.,
ROGER ZERKLE d/b/a ZDE ENTERPRISES,
and R.E. PHELON COMPANY, INC.

Defendants.

**ORDER CONCERNING DEFENDANT PHELON'S MOTION
TO PRECLUDE PLAINTIFF'S LIABILITY EXPERTS**

I. INTRODUCTION

This matter is before the Court on Defendant R.E. Phelon's Motion to preclude the Plaintiff's liability experts (Doc. #116). For the following reasons, the Court: (1) **DENIES** Defendant's Motion to preclude the testimony of Klempner and Metz; and (2) **GRANTS** in part, and **DENIES** in part, Defendant's Motion to preclude the testimony of Radcliffe.

II. BACKGROUND

The underlying facts are sufficiently set forth in the Court's Order granting in part, and denying in part, Defendant Phelon's Motion for summary judgment entered May 10, 2006. [Doc. 141]. Also, please see the Court's Order of May 30, 2006, concerning Plaintiff's Motion in limine to preclude certain testimony of Defendant's experts as

speculative and scientifically unreliable opinion testimony, for additional facts, as well as the standard of review applied in considering this motion.

III. APPLICABLE LAW AND ANALYSIS

Phelon seeks to preclude the testimony of three experts, Dr. Daniel Klempner (“Klempner”); Reinhard Metz (“Metz”); and Dr. Clark Radcliffe (“Radcliffe”).

A. Klempner

Klempner has a doctorate in physical chemistry and works as a professor of polymer chemistry and engineering. He was retained to testify about the epoxy used in the ignition trigger. Phelon does not challenge his qualifications, but does argue his testimony should be precluded because his opinions are not supported by sound scientific methodology.

Phelon contends Klempner’s testimony should be excluded because he did not perform tests to determine: (1) the force necessary to dislodge the epoxy; (2) the force necessary for cohesion failure; (3) an alternative epoxy; and (4) the surface area between the epoxy and the aluminum housing. Phelon also argues Klempner’s testimony should be precluded because he did not use calibrated equipment to take measurements.

The tests Phelon would like Klempner to have done were not necessary to form the basis of his opinion. Klempner observed gaps in the epoxy using a “Bausch and Lomb stereo microscope under 50 and 100X.” [Plaintiff’s Exhibit 35, p. 3]. He measured the gap at 0.011 inches by inserting a business card. *Id.* at 2. Based on his observations and the evidence he reviewed, including testimony regarding Phelon’s preparation process, Klempner opined that the epoxy lost adhesion and migrated

outward.

Questions about the accuracy of an experts results go to the weight of the evidence, not admissibility. *U.S. v. Bonds*, 12 F.3d 540, 563 (6th Cir. 1993). Phelon is free to challenge the accuracy of Klempner's measuring system and results through "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof." *Daubert*, 509 U.S. at 596. Klempner's testimony, based on his measurements, observations and review of evidence, that the epoxy lost adhesion and migrated outward will not be precluded under FRE 702.¹

Phelon also challenges Klempner's reliability because it alleges: (1) he contradicted himself when he testified Phelon used the wrong epoxy but then claimed the problem was the preparation technique; (2) the epoxy could not have migrated out because there was not complete separation from the aluminum housing unit; (3) there was no evidence of underfilling; and (4) he did not account for Phelon's use of the same preparation process for over ten years without incident.

All of the concerns raised by Phelon go to the weight of Klempner's testimony, not its admissibility. "[M]ere weakness in the factual basis of an expert witness' opinion bear on the weight of the evidence rather than on its admissibility." *McLean v. Ontario, Ltd.*, 224 F.3d 797, 801 (6th Cir. 2000)(citations omitted).

¹Phelon also argues in its Reply that Klempner's testimony should be precluded because he could not rule out the possibility that the damage to the ignition trigger occurred at impact as opposed to migration of the epoxy slug. "While other possibilities exist with regards to causation, the fact that several possible causes might remain uneliminated only goes to the accuracy of the conclusion, not the soundness of the methodology." *Nemir v. Mitsubishi Motors Corporation*, 381 F.3d 540, 553 (6th Cir. 2004)(citation omitted). Clearly, Klempner is not required to exclude all other possibilities in order for his testimony to be admissible.

Klempner did not contradict himself when he identified an alternative epoxy. His testimony is reasonably understood that Phelon *either* should have followed 3M's preparation recommendations for that particular epoxy, *or* it should have used an electronics grade epoxy.

Phelon contends the epoxy did not completely separate from the aluminum housing unit, as evidenced by the lack of gaps all the way down inside the aluminum housing. But, Klempner asserts the epoxy slug is lodged in the unit and not adhered to it. Again, conflicting testimony by other experts only goes to the weight of the testimony, not its admissibility.

Klempner testified he saw bubbles that indicated under filling of the epoxy. [Plaintiff's Exhibit 36, p. 66]. He conducted a test and found a weight difference between the damaged and undamaged ignition trigger. In determining the admissibility of expert testimony under FRE 702, "the focus...must be solely on principles and methodology, not in the conclusions that they generate." *Daubert*, 509 U.S. at 595. Phelon does not challenge Klempner's methods, only his conclusions.

Lastly, according to Phelon the ignition trigger was a "prototype" and not designed for use in aircraft engines. So, unless Phelon acknowledges that its ignition trigger has been used in aircraft engines for the past ten years, there is no relevant sample to compare to. Klempner is not required to explain why the alleged defect has not presented itself before.

B. Metz

Phelon challenges the qualifications of Metz to testify regarding two-stroke engines and ignition triggers. Metz is an electrical engineer; an instrument rated pilot;

and, a certified aircraft mechanic. However, he has limited experience with two-stroke engines.

Whether an individual is an “expert” is not viewed in a narrow sense. *U.S. v. Jones*, 107 F.3d 1147, 1159 (6th Cir. 1997). Courts have eschewed “imposing overly rigorous requirements of expertise and have been satisfied with more generalized qualifications.” *In re Paoli Railroad Yard PCB Litigation*, 35 F.3d 717, 741 (3rd Cir. 1994).

In this case, Metz testified that he was retained to consult because of his expertise in electrical systems and ignitions based on his background in electrical engineering, and also to consult with regard to causation in the “engineering sense” based on his experience in aviation. [Plaintiff’s Exhibit 34, pp.7-8]. Phelon concedes in its Reply that Metz is not being presented as a piloting or aircraft engine expert, but as an electrical expert. [Reply, p. 2].

Based on his “knowledge, skill, experience, training, or education,” Metz is qualified to testify as an expert in electrical engineering issues in small airplanes. Metz is an electrical engineer with an extensive background in aviation. While much of his experience is with engines more complex than Plaintiff’s two stroke engine, he does have experience with two stroke engines. Metz testified that he has disassembled several two stroke engines in boats, motorcycles and lawn mowers. [Plaintiff’s Exhibit 34, pp. 29-31]. Further, he has read articles and technical papers on two stroke engines. Additionally, Metz has published several articles concerning aircraft and electronics. [Plaintiff’s Exhibit 33, p.8].

Because his testimony is limited to the electrical engineering aspects of this

case, Metz is qualified to testify as an expert under FRE 702. *See also, Jones*, 107 F.3d at 1158, *infra*.

Phelon also challenges the reliability of Metz' findings because he did not perform his tests on an engine similar to Plaintiff's. Metz performed three tests. The first was to determine how the distance of the tang from the ignition trigger pin varied the timing of the engine, *i.e.*, the firing of the spark plug in relation to the position of the piston. Metz used components similar to those used in the ignition system on Plaintiff's aircraft. [Exhibit 34, pp.68-69]. He found that decreasing the gap did not cause pre-ignition - so Plaintiff would not have notice of changing engine conditions as the trigger coil allegedly migrated outward towards the tang.

The second test performed by Metz was designed to determine whether the damage to the ignition trigger resulted in an open circuit causing the spark plug from the damaged trigger to fire from the signal of the other spark plug. He used a pulse generator as the power source, and sent a current to the capacitive discharge ignition ("CDI") for one of the spark plugs. The CDI sent a signal to the spark plug to fire. The other spark plug also fired because of the stray electrical noise.

After he conducted a third test to determine if the components and layout he used were substantially similar to Plaintiff's, Metz concluded that the damage to the trigger coil created an open circuit. The open circuit allowed the spark plug to fire because of stray electrical noise from the CDI of the spark plug from the undamaged trigger coil.

Phelon claims Metz's testimony should be precluded because he did not conduct his test on a two-stroke engine. Rather, Metz conducted the test in his workshop using

other evidence to approximate the positions of the ignition system components.

The fact that Metz did not test on a two stroke engine is irrelevant. See *Clay*, 215 F.3d at 668 (6th Cir. 2000). As discussed above, a determination of admissibility pursuant to FRE 702 focuses on the methodology, not the conclusions. *Daubert, supra*. Phelon does not challenge Metz's methodology. It only argues that he cannot extrapolate that his results are consistent with what would occur in a two stroke engine. However, that is a challenge to Metz's conclusion - not his methodology. Metz, who the Court finds is a qualified expert, created a test to determine if the components he believes are substantially similar to those in Plaintiff's engine, would create the "antenna phenomena." After confirming that the antenna phenomena did occur, Metz concluded that based on his knowledge of electronics, airplane mechanics, two-stroke engines and his own tests - the antenna phenomena caused preignition in Plaintiff's aircraft. See *Clay, supra*. Phelon is free to challenge the factual basis for Metz's conclusion through cross-examination and contrary evidence from its own experts. It is for the jury to determine how much weight to give Metz's conclusion. The Court will not preclude the testimony under FRE 702.

C. Radcliffe

Phelon argues that Radcliffe is not qualified to give testimony on: (1) the failure of Plaintiff's engine; (2) epoxy; (3) whether the engine showed signs of lean fuel; and (4) the cause of the damage to the propeller.

Radcliffe is a professor of mechanical engineering. He was retained to testify regarding:

A. Design of machines in general, but specifically I've been asked to

look at an aircraft engine and the reasons for its failure.

Q. And so what were you advised about the underlying general information that you were going to be requested to be an expert?

A. Mechanical design features, machines design, as well as general mechanical engineering, thermal and fluid issues associated with design, and also the application of that to an aircraft engine.

[Plaintiff's Exhibit 32, pp.6-7].

Radcliffe is qualified to testify: (1) regarding the failure of Plaintiff's engine; (2) that a mechanical stop would have prevented epoxy migration; and (3) whether the engine showed signs of lean fuel.

Radcliffe has a bachelors, masters, and doctorate in mechanical engineering. He teaches courses in machine design², mechanical/electrical interface, mechanical engineering analysis, *etc.* Radcliffe may be qualified to give testimony involving two-stroke engines on that basis alone. See *Jones*, 107 F.3d at 1158 ("[I]f one wanted to explain to a jury how a bumblebee is able to fly, an aeronautical engineer might be a helpful witness. Since flight principles have some universality, the expert could apply general principles to the case of the bumblebee. Conceivably, even if he had never seen a bumblebee, he still would be qualified to testify, as long as he was familiar with its component parts.)(*quoting Berry v. City of Detroit*, 25 F.3d 1342, 1349-1350 (6th Cir. 1994).

But, Radcliffe has experience with two-stroke engines specifically. While earning his master's degree, he maintained and modified two-stroke engines in motorcycles.

²Machine design is described as "looking at the process by which a machine is designed and determining whether the machine is suitable and safe for certain purposes. *Clay*, 215 F.3d at 668.

[Plaintiff's Exhibit 32, pp.26-29]. His maintenance and modification included tuning the engines to the appropriate fuel air mixture by, among other things, examination of the spark plugs. *Id.* at 34-36. The fact that Radcliffe's professional position does not involve work with two-stroke engines is not determinative. See *Clay*, 215 F.3d at 668.

However, Radcliffe is not qualified to testify about the cause of damage to the propeller or defects in the epoxy. He does not purport to be, and his "knowledge, skill, experience, training, or education" do not support a finding that, he is an expert in materials or accident reconstruction. "[U]nder *Daubert* and its progeny, a party proffering expert testimony must show by a preponderance of proof that the expert whose testimony is being offered is qualified and will testify to scientific knowledge that will assist the trier of fact in understanding and disposing of issues relevant to the case." *Pride v. BIC Corporation*, 218 F.3d 566, 578 (6th Cir. 2000). While Radcliffe is qualified to opine that a mechanical stop in the ignition trigger would have prevented migration of the epoxy based on his mechanical engineering expertise - he is not qualified to testify regarding the selection of the epoxy, the surface preparation that should have been undertaken, or any deficiencies in the surface preparation that was undertaken. Additionally, Radcliffe lacks expertise in accident reconstruction. Accordingly, he is not qualified to testify whether the damage pattern of the propeller indicates rotation on impact.

Lastly, Phelon asserts that Radcliffe's testimony that pre-ignition caused the hole in the piston, is unreliable. Phelon points out that Radcliffe did not conduct any tests to support his conclusion. Further, it submits that its own experts, who built an exemplar motor substantially similar to Plaintiff's, tested to see if pre-ignition would result in a hole

in the piston. They found that it did not. [Moore's Supplemental Report, p. 13].

Moreover, Phelon claims that two-stroke engines in personal watercraft operate with a single ignition trigger, meaning the spark plugs fire at the same time. This is the same function that Radcliffe determined caused a hole in the piston of Plaintiff's engine.

Again, Phelon is challenging Radcliffe's conclusion, not his methodology. Based on the evidence he reviewed and his examination of the engine, he concluded there was pre-ignition. He claims that due to the increased temperature and pressure associated with pre-ignition, "[s]evere pre-ignition is well known to cause exactly the piston melting damage observed after the failure of [Plaintiff's] engine." [Plaintiff's Exhibit 31, pp. 9-10]. Conflicting testimony from other experts does not render Radcliffe's testimony inadmissible. *Bonds*, 12 F.3d at 563. Therefore, Radcliffe's testimony that pre-ignition caused the hole in the piston is admissible under FRE 702, Defendants are free to challenge his conclusion at trial.

V. CONCLUSION

For the foregoing reasons, the Court: (1) **DENIES** Defendant's Motion to preclude the testimony of Klempner and Metz; and (2) **GRANTS** in part, and **DENIES** in part, Defendant's Motion to preclude the testimony of Radcliffe.

IT IS SO ORDERED.

s/Victoria A. Roberts
Victoria A. Roberts
United States District Judge

Dated: May 30, 2006

The undersigned certifies that a copy of this document was served on the attorneys of record by electronic means or U.S. Mail on May 30, 2006.

s/Linda Vertriest

Deputy Clerk